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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,403	11/14/2003	Hyung-Jun Kim	46032	6834
7590 Peter L. Kendall Roylance, Abrams, Berdo & Goodman, L.L.P. Suite 600 1300 19th Street, N.W. Washington, DC 20036			EXAMINER WONG, BLANCHE	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 06/12/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/712,403

Applicant(s)

KIM ET AL.

Examiner

Blanche Wong

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-17, 20, 21, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 18, 19, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 7,10,24,25** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 7, it is unclear whether a set of all possible paths in line 5, is the same as all possible paths in claim 1, line 6.

With regard to claim 24, it is unclear how all the possible paths in claim 14, line 8, are between at least two base stations, whereas all the possible paths in claim 24, line 2, are between base stations adjacent to a terminal.

3. There is insufficient antecedent basis for this limitation in the claim.  
Claim 7, line 3, and claim 20, line 3, "the accuracy".

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2616

5. **Claims 1,3,8,9,11-14,16,21,24,25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Edge et al. (US2003/0069033).

With regard to claims 1 and 14, Edge discloses a timekeeping system comprising:

a location measurement unit (**LMUs**) for measuring mutual time difference (**relative timing**) of signals transmitted between at least two base stations (**pairs of base stations**) (**To obtain relative timing, a LMU may measure the arrival of transmission timing information from pairs of nearby base stations, para. [0008]**);

a mobile user location center (**central authority 110 in Fig. 1; see also SMLC, para. [0035]**) for receiving the mutual time difference of the signals measured by the location measurement unit (**[SMLC] to receive timing information from mobile units via base stations and to maintain the information, para. [0035]**) (if LMUs are used, **SMLC receives from LMUs via base stations**), determining all possible paths between said at least two base stations (**average, para. [0073]**) (**in order to take an average, all the timings are determined first**), and providing weights (**weight timing, para. [0073]**) to the measured mutual time difference for said all possible paths.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine LMU with Edge in order to provide for accurate information on relative timing. Edge, para. [0008].

With regard to claims 3 and 16, Edge further discloses

Art Unit: 2616

sequentially (**arrival is sequential**) measuring mutual time difference of the signals when received (**arrival**) (**measuring the difference in the arrival time, para. [0008]**); and

averaging measurements of the mutual time difference, thereby obtaining an average of the measured time difference for the signals (**average timing, para. [0073]**).

With regard to claims 8 and 21, Edge further discloses the measured mutual time difference of signals and its accuracy are transmitted from at least two base stations (**base stations**) to a base station controller (**SMLC**) (**[SMLC] to receive timing information from mobile units via base stations and to maintain the information, para. [0035]**).

With regard to claim 9, Edge further discloses the measured mutual time difference of signals and its accuracy are transmitted from the base station controller (**SMLC**) to a mobile user location center (**SMLC**) (**[SMLC] to receive timing information from mobile units via base stations and to maintain the information, para. [0035]**).

With regard to claims 11 and 24, Edge further discloses paths between base stations (**base stations**) adjacent to a terminal (**mobile units**) (**[SMLC] to receive timing information from mobile units via base stations, para. [0035]**).

With regard to claims 12 and 25, Edge further discloses non-line-of-sight multipaths (**clearer visibility, para. [0073]**) (**mobile units are traveling, so from time to time, they are not in the line-of-sight**).

With regard to claims 13 and 26, Edge further discloses errors of the measured mutual time differences (**better timing association accuracy, para. [0073]**) (**if errors can be found, then more accurate information is sought**).

6. **Claims 2 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Edge in view of Grilli et al. (Pub No. US2003/0007470).

With regard to claims 2 and 15, Edge discloses the method as claimed in claim 1. However, Edge fails to explicitly show a common pilot channel.

Grilli discloses time differences between base stations and common pilot channel (**CPICH, para. [0042] and [0043]**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine common pilot channel as taught in Grilli with Edge to provide for common pilot channels between base stations.

7. **Claims 4 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Edge in view of Gilhousen (U.S. Pat No. 6,034,635).

With regard to claims 4 and 17, Edge discloses the method as claimed in claim 3. However, Edge fails to explicitly show accuracy by means of a signal to noise ratio (SNR ... time differences cannot be easily measured, col. 3, line 67-col. 4, line 1).

***Allowable Subject Matter***

8. Claims 5,6,18,19,22,23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 7,10,20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rw

BW

June 10, 2007



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